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BRITISH COLUMBIA

South Peace Arm Stone's Sheep and Woodland Caribou Inventory, March 1995

M. D. Wood
November 1995

PWFWCP Report No. 49

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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

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Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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INTRODUCTION

An inventory of wildlife using alpine winter ranges on the south side of the Peace Arm was conducted on March 28, 1995. The primary objective of the survey was to locate Stone's sheep that were transplanted to the Mt. Frank Roy and Mt. Monteith areas in 1990, 1991 and 1993. A second objective was to inventory woodland caribou wintering in the area.

SURVEY CONDITIONS

The survey commenced at 10:45 am at Lemoray Airstrip in the Pine Pass, and was completed by approx. 5:00 pm (with one stop for re-fueling, and one stop on Mt. Frank Roy). Weather conditions were cool and sunny with some patchy high cloud. Winds were nil to low. Snow coverage in the alpine was 70 - 100%, with 50% open ground in some very windswept areas. The south-facing cliffs on Mt. Monteith had about 50-60% snow cover.

METHODS

The inventory involved a complete search of alpine areas on Boulder Mtn, Mt. Bickford, Mt. Monteith, Mt. Frank Roy and Mt. McAllister (Figure 1). The survey was conducted with a Bell 206 helicopter chartered from Northern Mountain Helicopters from Fort St. John, with pilot Bob Batchelor. The three-person crew (Mari Wood, Fraser Corbould and Randy Zemlak, Wildlife Biologists, PWCP) searched for, counted and classified animals, and recorded locations of animals seen using the helicopter's on-board GPS unit. Stone's sheep were classified as adult ewes. Class II rams. Class III rams or lambs based on horn development. Caribou were classified as adult males, adult females, unclassified adults or calves. Adult males were distinguished from females based on the absence of the black vulval patch.

RESULTS

Four hours of helicopter time was required to thoroughly search the five mountain blocks (Figure 1). Boulder Mtn was not as windswept as the other ranges; some tracks were seen, but no animals were observed. All other mountain ranges surveyed had extensive windswept areas, and caribou were located on all of them.

1. STONE'S SHEEP:

Stone's sheep were located only on the steep south facing cliffs of Mt. Monteith, between 1500 - 1550 metres elevation (Figure 2). Seven sheep, including radio-collared ewe 030 (one of three ewes collared during the 1993 transplant) were observed (Table 1). The other two radio-collared ewes from the 1993 transplant were searched for: a mortality signal was received from ewe 010 (Table 1, Figure 2), while ewe 996 was not located.

The other two ewes observed with ewe 030 on the survey, had ear-tags in their right ears. The ewe with the green tag was the lamb transplanted in 1993 that was released with collared ewe 030.

FIGURE 1. Mountain blocks surveyed during March 1995 ungulate inventory.

The other ewe sported a creamy-yellow ear-tag; the only sheep with a tag matching that description was a young ewe translocated from Schooler Creek during the first transplant of sheep in 1990. Her ear-tag is listed as white, but has probably faded over time. All of the sheep observed looked very healthy.

Tracks believed to be sheep or goat were also observed on Mt. McAllister, and on Mt. Frank Roy near locations C6 and C9 (Figure 2). Mt. McAllister did not appear as good for Stone's sheep as Mt. Monteith and Mt. Frank Roy, although a couple of areas with steeper terrain suitable for sheep were noted. However, the primary one was located on the east side of Mt. McAllister with a southeast aspect, and wasn't very windswept.

Table 1. Classifications of Stone's sheep observed on Mt. Monteith.

Map Locn	Easting	Northing	Class II Ram	Class III Ram	Ewes	Lambs	TOTAL
S1	533080	6174200	1	1	3	2	7
MORT	534520	6174700	Radio-collared ewe 010 on mortality				

2. WOODLAND CARIBOU

Woodland caribou were located on windswept alpine slopes on all mountain blocks surveyed except Boulder Mtn. A total of 189 animals were observed and classified on the following ranges: Mt. Bickford (49), Mt. Monteith (63), Mt. Frank Roy (38), and Mt McAllister (39) (Table 2, Figures 2,3&4).

Table 2. Locations and classifications of woodland caribou observed during survey

Map Locn	Mtn Range	Easting	Northing	Adult Male	Adult Female	Unclass Adult	Calf	TOTAL
C1	Mt. Bickford	537235	6161947	2	12	0	2	
C2	Mt. Bickford	536913	6163929	14	16	0	3	33
C3	Mt. Monteith	533502	6174939	8	2	0	0	10
C4	Mt. Monteith	532514	6175451	1	13	0	2	16
C5	Mt. Monteith	532184	6177507	15	15	0	7	37
C6	Mt. Frank Roy	533419	6178834	2	0	0	0	2
C7	Mt. Frank Roy	536900	6177380	2	6	0	4	
C8	Mt. Frank Roy	537171	6179235	6	0	0	0	6
C9	Mt. Frank Roy	535950	6177800	9	5	0	0	14
C10	Mt. Frank Roy	533480	6181821	2	2	0	0	4
C11	Mt. McAllister	532800	6190000	10	5	3	5	
C12	Mt. McAllister	532400	6189900	2	5	0	0	
C13	Mt. McAllister	532874	6191599	1	5	0	3	
TOTAL				74	86	3	26	189

FIGURE 2. Map locations of wildlife observed on Mt. Frank Roy and Mt. Monteith.

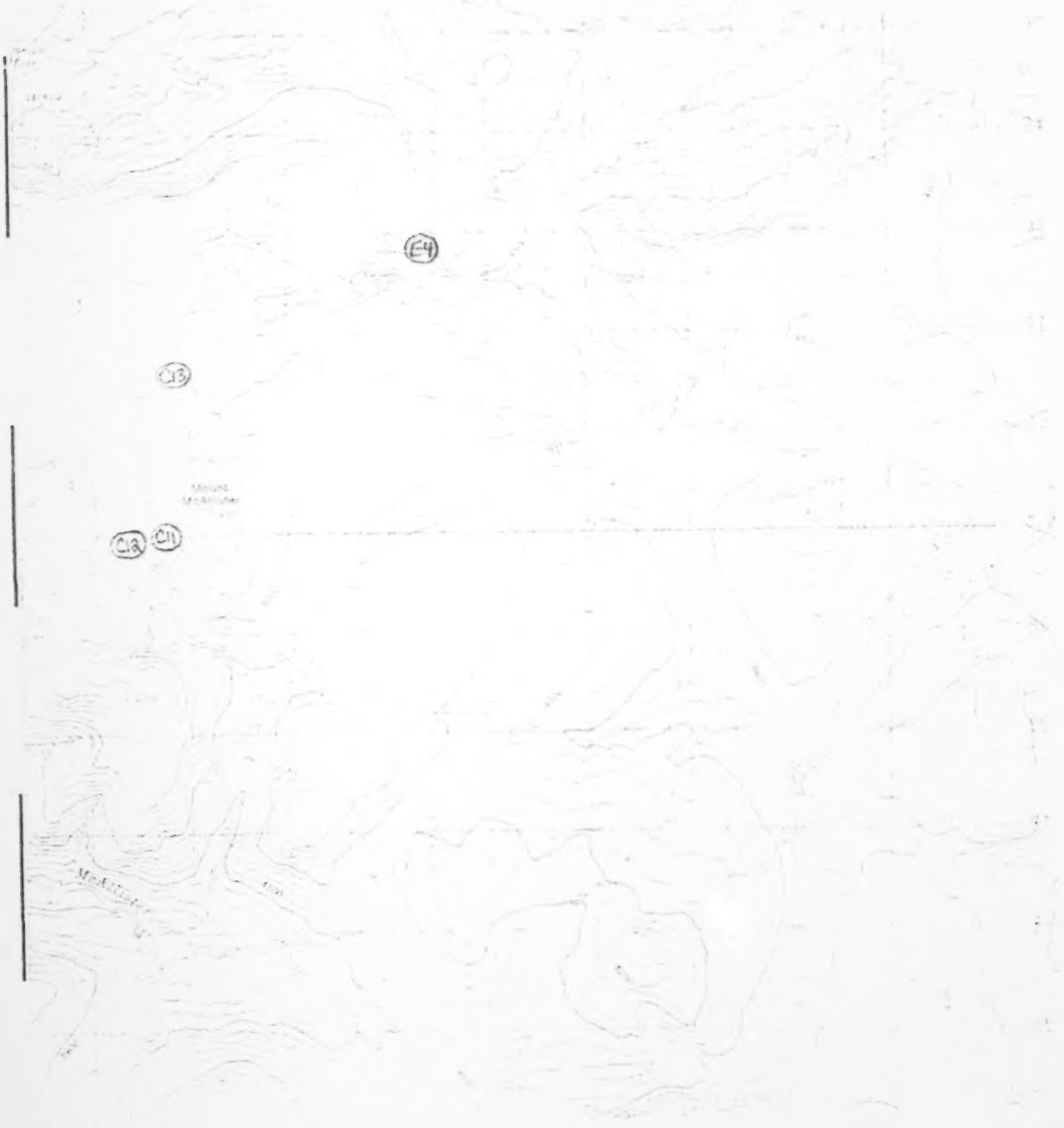

FIGURE 3. Map locations of wildlife observed on Mt. McAllister.

FIGURE 4. Map locations of wildlife observed on Mt. Bickford.

Excluding the three unclassified adults, a good late winter cow/calf ratio was observed at 30 calves per 100 cows. This is similar to ratios observed in other caribou herds on the west side of the Williston Reservoir: Wolverine herd 26:100 in 1989 and 19:100 in 1993, and Chase Mountain herd 30:100 in 1993 (Wood, in press). The bull/cow ratio was very high at 86 bulls observed per 100 cows. The mean bull/cow ratio of ten herds examined throughout B.C. ranged from about 35 to 50 bulls: 100 cows (Bergerud, 1980). This is similar to bull/cow ratios observed in the Wolverine 35:100, and Chase Mtn. herds 48:100 (Wood, in press). However, an abnormally high bull/cow ratio of 102 bulls: 100 cows was also observed on the March 1994 survey of the Muskwa Ranges on the east side of Williston Reservoir (Wood, 1994). The Muskwa figure may be an overestimate, as 45% of the total number of caribou observed were unclassified due to high winds during the survey. Depending on the composition of the unclassified caribou, the bull/cow ratio could be much lower.

Typical group sizes (the typical size of a group that an individual is likely to find itself in) were calculated according to the methods described in Jarman (1974). The typical group size based on the total number of caribou observed at each of the 13 map locations (Table 2) was 21.8 animals. In some cases, one map location was used to identify more than one group of caribou that were in close proximity to each other - no more than a few hundred metres apart. When the typical group size is calculated using all the smaller sub-groups, the number is considerably smaller (12.8 animals). Typical group sizes for other caribou herds in the Williston watershed area varied considerably. Typical group sizes based on radio-collared animals on the west side of the reservoir were 18.5 (+/- 9.7), and 17.6 (+/- 12.6) in March of 1992 and 1993 respectively (Wood, in press). Based on winter range surveys, the following group sizes were observed: 14.3 (February 1989), 11.2 (February 1993), and 42.0 animals (March 1993). The typical group size observed during the March 1994 Muskwa Ranges survey was 8.4 animals (Wood, 1994).

3. GOLDEN EAGLES

The Rocky Mountains are known as a major migration route for golden eagles heading north in the spring (Sherrington, 1993). Six golden eagles were observed on the survey (Table 3, Figures 2, 3 & 4). Golden eagles were also commonly observed during a survey of the Muskwa Ranges conducted by the PWCP in March 1994.

Table 3. Locations of golden eagles observed during survey.

Map Locn	Mtn Range	Easting	Northing	# of Eagles
E1	Mt. Bickford	538298	6161641	1
E2	Mt. Monteith	534033	6173923	1
E3	Mt. Monteith	533363	6173862	1
E4	Mt. McAllister	535335	6192817	1
Between McAllister & Monteith		n/a	n/a	2

RECOMMENDATIONS

1. Late winter and/or spring inventories for Stone's sheep should be conducted in the 1995/96 fiscal. A thorough inventory of high elevation alpine ranges south of the Peace Arm, and low elevation south facing slopes along Mt. Bickford, should be conducted to document numbers and distribution of Stone's sheep in the area.

2. An additional transplant of Stone's sheep should be considered to augment the previous transplants of sheep to the area. The source area of sheep for such a transplant should be carefully considered. An evaluation of the survival rate of radio-collared sheep transplanted in 1990, 1991 and 1993, revealed that sheep translocated from low elevation south facing slopes along the Williston Reservoir survived an average of 13 months on their new ranges, while sheep taken from high elevation windswept alpine ranges survived an average of 23 months (Backmeyer, 1995). It appears that sheep wintering in alpine ranges on the north side of the reservoir are better suited for transplanting to the high elevation alpine winter ranges on the south side of the reservoir. Sheep should be translocated to key winter range areas on Mt. Monteith and Mt. Frank Roy, near the present concentrations of sheep. If subsequent transplants to the area occur, a sample should be radio-collared to monitor dispersal, habitat use, mortality and natality of the sheep.

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